

INTEGSCI 4999E Research Project Information

An honours thesis project is the capstone of a four-year degree. You will have the opportunity to tackle a real scientific problem and apply many of the technical and professional skills that you have acquired over the last three years. We hope that your experience in INTEGSCI 4999E will be both challenging and rewarding.

What is the scientific problem that I will be working on?

The thought of working on a real scientific problem can be daunting. However, you will not be completely on your own nor will you, in most cases, have to create your own project. You will be supervised by at least one faculty member in the Faculty of Science, and the project that you will work on will depend on the research interests of that faculty member. They will usually provide you with a list of projects from which you select one. This is normal not only for undergraduate thesis projects, but also for MSc and even PhD projects.

One of the reasons why you usually cannot create your own project is because faculty members usually plan their projects a year or more in advance. These projects have grant funding and resources associated with them, and they are broken down into smaller, self-contained sub-projects that are intended for students at different levels. Even if you are the most enthusiastic student, it can be difficult for you to choose the appropriate level and scope for a thesis project, so supervisors have usually thought about and prepared for this in advance. Throughout the duration of the project, you will receive guidance from the faculty member, their research group, and in some cases, an advisory committee. Even students at the PhD level receive (and often still need) this type of guidance, so you are obviously not expected to advance the project all on your own.

This does not prevent you from suggesting your own project to a potential supervisor, but suggesting your own project is certainly not expected at this level. If you would really like to attempt that route, start looking *now* for a potential supervisor whose interests closely align with yours and who has the capacity to take you on a student. Try to convince them that you would be a worthwhile student to supervise.

So how do I get a supervisor? And what are my obligations?

The procedure for finding a supervisor and a project depends on your area of concentration and hence your home department. More details are provided below and will be updated continuously. Once you have been matched with a supervisor, you must fulfill all honours thesis requirements as stipulated by your home department. This includes preparing, in consultation with your supervisor, an abstract, a proposal, a registration form, or some combination of these for your project. This requirement, once finalized and approved by your supervisor and/or your home department thesis coordinator, must also be submitted to the INTEGSCI 4999E coordinators. The coordinators for 2020–2021 will be announced once they are finalized.

Integrated Science with Biology or Genetics

- The Department of Biology is the home department for students in these modules. You are responsible for finding your own supervisor and project. Potential supervisors and projects are posted in the winter term, but students often find supervisors even before that list is released.
- Attend the Biology information sessions and meetings about thesis projects. They usually take place in February or March.
- Once you have found a supervisor, find, in consultation with your supervisor, an advisory committee.
- Obtain a thesis project application form from the Biology undergrad office or website. Send us the completed form at least a few days before the deadline. We will then forward it to Biology, after which they will add you to the Bio 4999E OWL site.

Integrated Science with Chemistry

- A list of projects will typically be made available before September on the Chem 4491E OWL site. Early in September, there will be a reception where you will have the opportunity to meet supervisors and ask any questions you may have about their projects.
- After the meet-and-greet, you will be asked to submit a list of your top project choices. Shortly afterwards, you will be assigned a project and supervisor.

Integrated Science with Computer Science

- Details coming soon

Integrated Science with Earth Science

- Details coming soon

Integrated Science with Environmental Science

- Environmental Science is a program without a department. You are responsible for finding your own supervisor and project.
- Attend the Environmental Science information sessions and meetings about thesis projects. They usually take place in February or March.

Integrated Science with Physics or Astrophysics

- The Department of Physics & Astronomy is the home department for students in these modules. You are responsible for finding your supervisor and project. Potential supervisors and projects are posted on the departmental website in the summer. However, students sometimes find supervisors and projects outside of that list, and their choice may be acceptable.
- After finding a supervisor and a project, schedule a meeting with the Physics & Astronomy thesis project coordinator to discuss the project and receive formal approval to start. In the rare case that the project is not approved, the thesis coordinator will make recommendations to help you find a suitable project.

Does my supervisor need to work in interdisciplinary research or have to be cross-appointed?

The research interests of your supervisor, as well as your research project, should be described in some interdisciplinary context. Because scientific research today is incredibly interdisciplinary and applied, it is extremely rare to not be able to describe the research in an interdisciplinary context.

Supervisors do not need to be cross-appointed (appointed between two or more departments).

How many supervisors do I need?

Just one, as long as the supervisor is a faculty member in the Faculty of Science.

You are welcome to have a co-supervisor from industry, at a hospital, or outside of Western. However, in these cases, you must have, in addition to your external-to-Western supervisor, a co-supervisor who is a faculty member in the Faculty of Science. Obviously, the co-supervisor in the Faculty of Science must be willing to work with your external-to-Western supervisor.

Likewise, you are welcome to have a co-supervisor from Schulich, but you would also need to have a co-supervisor who is a faculty member in the Faculty of Science. This is because Schulich is not part of the Faculty of Science when it comes to degrees and modules. As a consequence, you will also not be provided with lists of possible supervisors and projects as you would from the Faculty of Science departments. However, if you meet the prerequisites for a Schulich thesis project and you can find a supervisor there, it may be a possibility.

Your thesis project can also take place outside of your home department, but it must still relate to your area of concentration and you must meet the prerequisites. For example, it is unlikely that supervisor with research interests in theoretical physics would be willing to supervise an Integrated Science with Biology student unless the student has already taken some third-year physics courses.

Can we continue previous research projects, such as summer projects, for our thesis?

Yes, assuming you have supervisor and departmental approval. However, you must, in your reports and presentations, clearly indicate which work was done prior to, and which was done during, the thesis project. This policy is standard in most departments in the Faculty of Science.

Does Integrated Science grade the honours thesis projects, or do the respective departments?

Actually, both! On paper (that is, your transcript), you will only be registered in INTEGSCI 4999E. But in reality, you will be part of your home department's honours thesis course and also a part of INTEGSCI 4999E; accordingly, you should ensure that you are added to the OWL sites for both courses. Your grade in INTEGSCI 4999E will be determined by both your home department (80%) and by Integrated Science (20%; see below). The departmental portion will speak to the requirements of the home department. You will effectively be shadowing your home department's thesis course. The 80% portion comes from your home department's requirements, which may differ slightly from department to department. Details should be available in course outline of your department's thesis course.

The Integrated Science portion will emphasize the interdisciplinarity of your project. Note that the project itself does **not** need to be interdisciplinary as long as it can be put into an interdisciplinary context. For example, you could be doing a project in synthetic organic chemistry, but you would need to highlight the interdisciplinary significance and impact of this work on other disciplines. You should be able to do **both** at the same time. That is, by being in Integrated Science, you are not having to do extra work, but by portioning the marks differently, we are able to ensure that your projects are interdisciplinary. The Integrated Science portion (see later for details) will be determined by your abstract, mid-year progress report, and final deliverables – components that you are required to produce for your home department anyway. Your departmental final deliverable will be either an oral or poster presentation, while your Integrated Science final deliverable will be a poster presentation based on material in your departmental presentation.

The 20% portion from Integrated Science comes from three deliverables:

3%	Registration form and proposal/abstract
6%	Mid-year review (which could be your introduction/literature review)
11%	Poster

The departments may refer to those deliverables using different names, so to clarify, we are looking for:

Registration form:	Project title and the name and contact information for your supervisors, co-supervisors, advisors, and anyone else who is involved with your project
Proposal/abstract:	An outline of your proposed research project (it will probably be between a paragraph and a page in length)
Mid-year review:	An update of what you have achieved (which could be your introduction or literature review), how you may need to edit your proposal/abstract, what you anticipate that you will be able to accomplish in the remaining months, and any other relevant information that you may wish to share
Poster:	Convey project to a general science audience (i.e. your Integrated Science peers who have a science background but are not necessarily experts in your area of concentration) why your project is important. This is expected to be an electronic poster session near the end of the winter semester.

The registration form, proposal/abstract, and mid-year review are likely components that you will also need to do for your home department. You simply need to submit them again to the INTEGSCI 4999E OWL site under the appropriate dropbox. We will be looking specifically at the interdisciplinary nature and/or the interdisciplinary applications of your work. If you think that the submissions to your home department do not adequately speak to those points, you can submit a supplemental document that speaks specifically to the interdisciplinary nature of the work. We do not expect the supplemental document to exceed the length of the original submission. For those who may wish to submit these optional extras, the deadline for submission will be one week following the last departmental deadline for each item (for example, if the Physics proposal/abstract deadline is on the 1st of the month, but the Biology deadline is on 7th, the Integrated Science deadline will be on the 14th).

The 11% allocated to the poster will be assessed as follows:

3%	Does it highlight the interdisciplinary nature and/or the interdisciplinary applications of your work?
3%	Is it at the appropriate level for a general science student?
2%	Is the oral presentation clear and of the appropriate length (3 minutes)?
1%	Overall visual clarity, organization, and appeal
1%	Grammar, punctuation, and spelling
1%	References

Can we attend conferences to present our research?

Most disciplines have a venue for the dissemination of honours thesis work. These include Ontario Biology Day, the Southern Ontario Undergraduate Chemistry Conference, the Physics Undergraduate Conference, etc. Presenting your work at a conference is a worthwhile experience, so you are strongly encouraged to attend and put the presentation skills that you have learned throughout WISc to good use! To minimize the impact of financial barriers, we will cover registration, transportation, and accommodation costs. (These are usually organized by the home department, but we will reimburse them for your expenses.)

If there are other conferences that you would like to attend, please contact us to see if financial support is possible.

How many credits does INTEGSCI 4999E count for?

All INTEGSCI 4999E credits are 1.5 regardless of your area of concentration or home department. Everyone will be evaluated according to the 80:20 ratio described above.

Because the course counts for 1.5 credits, you will need to take another 3.5 courses in order to achieve a full course load (5.0 courses). These 3.5 courses you take will depend on your module's requirements and options, the availability of the courses, and scheduling. So that you can focus on your research project, you are discouraged from overloading in your fourth year.

What if I plan on doing an internship, or I am doing one now?

If you are currently in your third year, you may not know until as late as August whether you will be starting an internship in September (your fourth year). If your home department requires you to find your own supervisor and project, proceed as though you will not be doing an internship. However, you should mention to a potential supervisor at your first meeting that an internship is a possibility for you and that you may be seeking a project for either this year or next year. If you do receive an internship, you would start your thesis project in September when you return for your fifth year.

If you are currently away doing an internship, are in home department that requires you to find your own supervisor and project, and you have not found one, it is recommended that you contact potential supervisors by email.

Can I complete an accelerated MSc?

Possibly. If your home department offers an accelerated MSc, then it may be possible to do an Integrated Science undergraduate degree and an accelerated MSc.

Schulich's accelerated MSc:

https://www.schulich.uwo.ca/biochem/undergraduate/project_courses/accelerated_msc.html#accel

Astronomy accelerated MSc:

http://www.physics.uwo.ca/graduate/future_students/astronomy_program_requirements.html